Australian/New Zealand Standard™

Structural design actions

Part 0: General principles

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-006, General design requirements and loading on structures. It was approved on behalf of the Council of Standards Australia on 29 March 2002 and on behalf of the Council of Standards New Zealand on 28 March 2002.
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The following are represented on Committee BD-006:

Association of Consulting Engineers Australia
Australian Building Codes Board
Australian Steel Institute
Building Research Association of New Zealand
Cement and Concrete Association of Australia
Concrete Masonry Association of Australia
CSIRO, Building, Construction and Engineering
Cyclone Testing Station—James Cook University
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Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Australia Web Site at www.standards.org.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 00904.

AS/NZS 1170.0:2002
(Incorporating Amendment Nos 1, 2, 3, 4 and 5)

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AS 1170.1—1989, AS 2867—1986, and NZS 4203:1992 jointly revised, amalgamated and redesignated in part as AS/NZS 1170.0:2002.
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-006, General Design Requirements and Loading on Structures to supersede, in part, AS 1170.1—1989, *Minimum design loads on structures,* Part 1: *Dead and live loads*, and, in part, NZS 4203:1992, *Code of practice for general structural design and design loadings for buildings,* Volume 1: *Code of practice* and, in part, AS 2867—1986, *Farm structures—General requirements for structural design*.

This Standard incorporates Amendment No. 1 (January 2003), Amendment No. 2 (November 2003), Amendment No. 3 (April 2011), Amendment No. 4 (April 2005), and Amendment No. 5 (September 2011). The changes required by the Amendments are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

A4 This Standard is published as a joint Standard (as are also AS/NZS 1170.1 and AS/NZS 1170.2) and it is intended that it is suitable for use in New Zealand as well as Australia.

For Australia, this Standard will be referenced in the Building Code of Australia by way of BCA Amendment 11 to be published on 1 July 2002, thereby superseding in part the previous Edition, AS 1170.1—1989, which will be withdrawn 12 months from the date of publication of this edition. AS 1170.1—1989 may be used for structures not covered by the Building Code of Australia, until an Appendix is developed for inclusion in this Standard by amendment.

The objective of this Standard is to provide designers with general procedures and criteria for the structural design of structures. It outlines a design methodology that is applied in accordance with established engineering principles.

This Standard includes revised Clauses covering load combinations (referred to as combinations of actions) and general design and analysis clauses. It does not include values of actions (e.g. values of dead or live loads; referred to as permanent or imposed actions).

This Standard is Part 0 of the 1170 series, *Structural design actions*, which comprises the following parts, each of which has an accompanying Commentary published as a Supplement:

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AS/NZS 1170.0	General principles
AS/NZS 1170.1	Permanent, imposed and other actions
AS/NZS 1170.2	Wind actions
AS/NZS 1170.3	Snow and ice actions
AS 1170.4	Earthquake actions in Australia
NZS 1170.5	Earthquake actions – New Zealand

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The Commentary to this Standard is AS/NZS 1170.0 Supp 1, *Structural design actions—General principles—Commentary* (*Supplement to* AS/NZS 1170.0:2002).

This Standard is based on the philosophy and principles set out in ISO 2394:1998, *General principles on reliability for structures*. ISO 2394 is written specifically as a guide for the preparation of national Standards covering the design of structures. It includes methods for establishing and calibrating reliability based limit states design Standards.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

A5 Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard. Notes to the text contain information and guidance and are not considered to be an integral part of the Standard.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Structural design actions

Part 0: General principles

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies general procedures and criteria for the structural design of a building or structure in limit states format. It covers limit states design, actions, combinations of actions, methods of analysis, robustness and confirmation of design.

The Standard is applicable to the structural design of whole buildings or structures and their elements.

This Standard covers the following actions:

(a) Permanent action (dead load).

(b) Imposed action (live load).

(c) Wind.

(d) Snow.

(e) Earthquake.

A3 (f) Static liquid pressure.

(g) Ground water.

(h) Rainwater ponding.

(i) Earth pressure.

NOTES:

1 Where this Standard does not give information required for design, special studies should be carried out. Guidance is given in Appendix A.

2 Where testing is used to determine data for design or to confirm a design, guidance on methods is given in Appendix B.

3 Normal design practice is that all likely actions be considered. Any actions considered in design that are not in the above list should be the subject of special studies, as they are not covered by this Standard.

4 Additional information on other actions such as movement effects, construction loads and accidental actions is given in the Commentary (see Preface).

5 Movement effects include actions on structures resulting from expansion or contraction of materials of construction (such as those due to creep, temperature or moisture content changes) and also those resulting from differential ground settlement. Serviceability may be particularly affected by such actions.

6 Guidance on criteria for serviceability is given in Appendix C, which have been found to be generally suitable for importance level 2 buildings. Structures of special importance or structures where more stringent criteria are appropriate may require the stated criteria to be tightened.